**Regional Monarch Conservation Action Plans**

**Region 5**

**Last Updated November 12, 2014**

**Part I. FY 2015 Commitments**

1. **FY 2015 Habitat Restoration & Enhancement Commitments**

**Provide a narrative summary of monarch habitat restoration and enhancement commitments in your Region using existing funds for FY 2015. Summarize acreages in Table 1.**

**Definitions for “Restoration” and “Enhancement” are provided below. If possible, break out the restoration and enhancement commitments by land ownership categories.**

**Restoration**

* **Includes habitat creation and restoration on Service owned lands (NWRs, NFHs), easements, state lands, private lands, ROWs, mitigation banks, Federal Lands Highways Projects**
* **Includes projects established prior to FY15 that will be providing suitable monarch habitat in FY15**

**Enhancement**

* **Includes implementation or modification of land management practices to enhance habitat for monarchs (mowing, haying, farming, grazing, fire, mechanical/chemical treatments, use of pesticides, control of invasive species, forest management activities)**
* **Includes interseeding with milkweeds and forbs**
* **Includes maintenance of existing projects**

**Land Acquisition**

* **Provide a bullet list FY15 land acquisition projects that include monarch habitat. Include acres of monarch habitat to be acquired in FY15 in Table 1.**

Region 5 is taking a cross-programmatic approach and identifying ways to work with diverse partners to restore and enhance habitat on federal and non-federal lands. The Region has already generated a spreadsheet of over 125 conservation projects (and growing), including at least 80 projects which incorporate habitat restoration and enhancement on over 15,000 acres (see attached spreadsheet). Projects include work on refuge lands, state, county, and municipality lands, NGO properties, utility ROWs, schools, private lands, and others. Initiatives are also varied and range widely, including installing small pollinator gardens and school yard habitats, delaying mowing, collecting milkweed seed, and planting milkweeds and nectar plants to enhance grassland habitat or restore degraded habitat for monarchs. Table 1 below provides a summary of these projects. However, because we do not have standardized criteria for defining and ranking monarch habitat, and we working on this plan at a time when “field-checking” habitat conditions is not optimal, the acres in Table 1 are likely an underestimate. Additionally, gathering information on all projects across Region 5 in such a short time frame has been challenging, and although we are being as comprehensive as possible in our approach, it is likely that some existing or planned projects have not yet been accounted for. For example, we identified an additional 1,500 acres that have been enhanced or restored through Partners for Fish and Wildlife and Coastal Program projects, which may provide habitats for monarchs. These are not currently included in Table 1 because we didn’t have time to carefully review the status of each project. We look forward to incorporating an SHC approach in the near future to help us identify priority areas in Region 5 to target for additional pro-active and opportunistic restoration and enhancement.

In order to track each project’s progress, a project tracking database will be developed on our Monarch SharePoint Site (<https://fishnet.fws.doi.net/regions/5/nwrs/im/MON/>). In addition, a data management plan will be developed to provide a framework for data collection, entry, validation, access, backup, and archival. It is anticipated that development of a data management plan and an associated database(s) will be part of cross-regional approach to develop an inventory and monitoring protocol. See Section D: Inventory and Monitoring for more information on FY 15 anticipated inventory and monitoring commitments.

**Table 1. FY 2015 - Habitat Restoration & Enhancement Commitments**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Ownership** | **Acres Existing or Planned for FY15 Using Existing Funds** | **Partners[[1]](#footnote-1)** |
| **Restoration** | Service owned lands[[2]](#footnote-2) | 81 |  |
| Easements | 0 |  |
| State lands | 200 |  |
| Private Lands | 85 |  |
| ROWs, roadsides | 0 |  |
| Mitigation Bank | 0 |  |
| Tribal lands | 0 |  |
| Corporate | 355 |  |
| NGO[[3]](#footnote-3) | 10 |  |
| Schools[[4]](#footnote-4) | 1 |  |
| Towns / Municipalities[[5]](#footnote-5) | 166 |  |
| Other | 36 |  |
| **Subtotal Acres Restoration** | | **784** |  |
| **Enhancement** | Service owned lands | 1,308[[6]](#footnote-6) |  |
| Easements | 0 |  |
| State lands | at least 13,000[[7]](#footnote-7) |  |
| Private lands | 47 |  |
| ROWs, roadsides | 270 |  |
| Mitigation Bank | 0 |  |
| Tribal | 0 |  |
| Corporate | 46 |  |
| NGO | 24 |  |
| Schools | 14 |  |
| Towns / Municipalities | 462 |  |
| Other | 8 |  |
| **Subtotal Acres Enhancement** | | 15,179 |  |
| **Land Acquisition[[8]](#footnote-8)** |  |  |  |
| **Total Acres FY 15** | | 15,963 |  |

In addition to habitat and restoration projects that are already underway for 2015, we’ve identified additional potential opportunities to work with other federal, state, private, and NGO landowners to incorporate monarch habitat considerations into ongoing management. These opportunities are still being explored and may not result in new habitat in 2015, but we are committed to exploring these ideas to increase monarch habitat in the future:

* We will continue to identify Refuge lands that are currently allowing farming but will likely be discontinuing the practices in the next few years. There are about 1,000 acres on 8 different Refuges that fit this description, and some of these acres may provide great opportunity for monarch habitat restoration.
* On Refuge and Hatchery lands we will develop and implement Best Management Practices (BMPs) where mowing and prescribed fire are commonly used management tools to benefit monarch butterflies and other pollinator species. Several refuges are already adjusting mowing and burning programs, and these will serve as a great starting point.
* Further, we will continue to identify and engage potential land management partners and try to develop BMPs that might be applicable to non-Refuge lands, including improved mowing, invasive species control, and burning practices. Potential partners and respective lands include:
  + Utility companies and others managing ROWs
    - For instance, the New England Field Office (which covers five states - NH, CT, VT, MA and RI) frequently reviews proposed transmission line and gas pipeline projects. These linear projects require regular maintenance in order to keep woody vegetation from establishing within the corridors and ROWs. Projects come in many sizes and can extend for over one-hundred miles. There are likely thousands of acres of existing and proposed corridors and ROWs in these five New England states. In the past, power companies have been receptive to managing lands for the benefit of natural resources and we hope to partner with utilities to promote the creation of habitat for the monarch butterfly.
  + Departments of Transportation (including roadsides)
    - We will work to identify DOT mowing practices in states in Region 5 and determine opportunities for alternative mowing schedules to protect and enhance monarch habitat. We will build on the engagement work being conducted by the Loudon Wildlife Conservancy in the state of Virginia.
  + Department of Defense (including airstrips and military bases)
    - We hope to engage DOD natural resource managers on a local, regional, and national basis. Many of the DOD bases have large managed grasslands and there are likely opportunities to alter some management (delayed mowing for instance) without impacting DOD’s management goals.
  + County Conservation Officers, Towns, and Municipalities (including capped landfills, and open space areas); landfills especially may offer a huge reservoir of untapped grassland habitat potential and could provide positive public relations for conservation on public / private properties.
  + EPA (including brownfields)
  + Superfund sites (including capped landfills)
* Within our Wildlife and Sport Fish Restoration Program we will continue reaching out to the Northeast Habitat and Fish and Wildlife Diversity Technical Committees to identify actions our associated states are already taking with respect to grassland/shrubland management that may benefit monarchs, and to determine if there is interest in implementing additional management specific to monarchs. Three states are willing to discuss immediate changes in state land management practices and are included in the table above. We expect more states will join the effort once a more definitive regional strategy is developed and presented to the Northeast State Directors.
* Within our Ecological Services Program, especially Partners for Fish and Wildlife Program, Coastal Program, and Natural Resource Damage Assessment and Restoration Program (NRDAR), we will incorporate nectar producing plants and milkweed in habitat restoration and enhancement projects wherever appropriate in wetland, stream, riparian, early successional, and upland habitat projects.
* Within our Ecological Services Program we will also work with State mitigation / conservation banks to enhance these protected properties for monarchs. Due to the new Corps-authored mitigation rule, mitigation banks are currently the preferred method of offsetting impacts to aquatic and terrestrial habitat (especially for threatened and endangered species).  Each state is in the process of developing, or has developed mitigation/conservation banks to cover specific areas.  Partnering now to ensure plantings that are beneficial to monarchs will also increase the value of these mitigation sites for a diversity of pollinator species.
* Within Ecological Services we will continue to work with USDA’s Natural Resource Conservation Service (e.g. CSP. EQUIP, Working Lands for Wildlife) at the state level to assess, plan, and implement cooperative conservation practices, including incorporating milkweed and nectar-producing species, that provide direct benefits to pollinators and monarchs.

1. **Best Management Practices**

**Describe FY15 plans using existing funding to develop monarch-specific BMPs for your Region.**

In Region 5, we are collecting all the existing information that will help inform land managers and help guide restoration and enhancement projects. We have established a Refuge Sharepoint Site for monarch butterflies (https://fishnet.fws.doi.net/regions/5/nwrs/im/MON/) where we have begun collecting information on:

* Methods for collecting milkweed seed
* Methods for propagating milkweed
* Methods for planting milkweed
* Minimizing milkweed pests and diseases
* Planting strategies for forage plants for pollinators and monarchs
* Sources of milkweed seed and native plants

Several projects are already under way implementing BMPs in the Region (see attached spreadsheet), but during the next year, we will work cross-programmatically to identify where we still need guidance and BMPs, and will consult with subject matter experts, other Regions, and Headquarters to develop BMPs that are relevant in Region 5. We’ve already identified the following needs which will help standardize our efforts and increase our efficiency in creating more habitat for monarch butterflies:

* Incorporating prescribed fire management (with latitudinal considerations)
* Incorporating mowing and haying (with latitudinal considerations)
* Seed collection, propagation, seeding and planting (with geographical considerations, and also incorporating concerns about seeds treated with neonicotinoids)
* Invasive plant management (prioritization and implementation to minimize impacts)
* Establishing pollinator gardens of various sizes (including plant recommendations)
* Management of ROWs and other frequently mowed habitats such as roadsides
* Management practices for all wetland mitigation sites to include pollinator friendly plants, when practicable, into their landscape plans.   This is already in place at the New Jersey Field Office, and has resulted in numerous acres of pollinator habitat created within the State of New Jersey.​ This model should be expanded to other Field Offices and other habitats.
* Vetting of plant lists
  + Some of the standard mixes which Ernst Conservation Seeds Inc. supplies and the recommended Xerces Society mix for the mid-Atlantic or Northeast should be vetted as there may be species included which are not native to either the mid-Atlantic or the Northeast. An example is *Echinacea purpurea* (purple coneflower), a prairie species which has become naturalized in the mid-Atlantic and the Northeast. We recommend Field Offices check with the State Natural Heritage Program for a list of plants determined to be native to a particular State or county within the State.
* Management across the landscape – stepping down SHC
* Exploring potential overlap of habitat use and management practices for monarch butterflies, grassland birds, and even shrubland birds / New England Cottontail. There are already many identified opportunities for slight alterations in grassland habitats to benefit monarch butterflies. However, there may also be some opportunities in Region 5 for monarch habitat to be considered in shrubland restoration projects. For example, Region 5 has a proposed North Atlantic Shrublands LPP Focus Area, which includes 2,761 acres of grassland/herbaceous, 2,787 acres of scrub/shrub, 9,639 of pasture/hay habitats, and 4,616 acres of emergent herbaceous wetlands. Although only a small portion of these lands would be purchased, there are likely to be opportunities for increased management for monarchs.

1. **Native Seed Strategies**

**Describe FY15 plans using existing funding for:**

* **Seed purchases**
* **Coordination with seed vendors and options/plans to increase supply**
* **Milkweed Collection and Harvest (include metrics if possible, i.e. pounds of seed, numbers of volunteers participating, etc.)**
* **Native grass/forbs harvest (metrics - pounds of seed)**
* **Milkweed Propagation (indicate scope and resources to be utilized – Service nursery facilities, projected # of plants to be produced)**
* **Seed distribution (to schools, at visitor centers, etc.)**
* **Identify partners (volunteers, Friends groups)**

**Provide a bullet list of specific projects, if possible. Include project title, brief description, partners, metrics and outcomes.**

* Seed Purchases: In Region 5, we have secured nearly 40 pounds of milkweed seed for distribution to habitat enhancement and restoration projects for the next year.
  + We received three pounds each of common milkweed (*Asclepias syriaca*) and swamp milkweed (*A. incarnata*) from Xerces Society at no cost. Several Ecological Services Field Offices have requested the seed, and we are in the process of dividing it among the projects.
  + Prompted by the great response to seed availability by Field Offices, Ecological Services has also committed an additional $5,000 towards purchasing seed. These funds are being used to purchase 14.2 pounds each of butterfly milkweed (*Asclepias tuberosa*) seed and common milkweed, and 5.5 pounds of swamp milkweed seed from Ernst Conservation Seeds Inc. (Meadville, Pennsylvania). We are currently identifying a process for allocating this seed for 2015. These seeds will be used as part of a wildflower mix.  Published information and personal communication with the Xerces Society and other monarch experts suggest a range of 3-5% of milkweed seeds in wildflower mixes.  If the milkweed seed is added at 3% to existing mixes we estimate this could be applied to 220 acres at a rate of 5 pounds of seed mix per acre. The combination of seed from Xerces Society and Ernst Conservation Seeds Inc.
* About 10 projects in Region 5 are already incorporating seed collection (see attached spreadsheet). As we incorporate SHC into monarch conservation over the next year, including identifying geographic extent of habitat, assessing quality of habitat, and assessing monarch use of habitat, we expect to identify additional sites where seed collection and redistribution is appropriate to enhance and restore habitats.
* As we further develop our outreach and engagement strategy, we also hope to evaluate the opportunities for providing seeds (or helping partners to collect seed) for schools and visitor centers. Projects that highlight Service involvement with local schools to enhance seed collection and dispersal include: programs conducted by Patuxent Research Refuge and Rachel Carson National Wildlife Refuge that provide seed to local schools through environmental education; and, Montezuma National Wildlife Refuge works with partners to collect seeds on St. Lawrence Grasslands for ultimate dispersal onto local private lands.
* Our partners for incorporating native seed strategies include: Fairfax County, VA public school system; James River Ecology School; Earth Sangha; Ducks Unlimited; NY State Department of Environmental Conservation; Seneca Wetlands Meadow Preserve; Montezuma Audubon Center; and Friends of the Montezuma Wetlands Complex. A complete list of partners is provided in the attached spreadsheet.

1. **Inventory and Monitoring**

**Describe FY15 plans using existing funding for:**

* **milkweed surveys (quantify if possible, i.e. # of surveys and acres assessed)**
* **monarch breeding habitat assessments (see MJV Assessment Tool at** [**http://monarchjointventure.org/images/uploads/documents/Habitat\_Assessment\_Tool\_Final\_test.pdf**](http://monarchjointventure.org/images/uploads/documents/Habitat_Assessment_Tool_Final_test.pdf)**)**
* **participation in citizen science monarch butterfly monitoring programs (see** [**http://www.monarchjointventure.org/get-involved/study-monarchs-citizen-science-opportunities/**](http://www.monarchjointventure.org/get-involved/study-monarchs-citizen-science-opportunities/)**).**
* **other**

**Provide a bullet list of specific projects, if possible. Include project title, brief description, partners, metrics and outcomes.**

* In the next year, we are committed to working with subject matter experts, other Regions, Headquarters, and the National Inventory and Monitoring Program to develop standardized protocols for baseline data collection and evaluation of management actions which will support our SHC approach and help inform management decisions.  We hope that through SHC, we’ll be able to refine our habitat objectives. We need standardized protocols and databases that identify the appropriate metrics, level of accuracy (bias and precision), and threshold for success for:
  + Identifying and ranking monarch habitat
  + Identifying and ranking monarch butterfly use
  + Measuring pre- and post-treatment conditions to evaluate management success (this could be habitat or species-based metrics, depending on the site)

Specific questions we anticipate wanting to answer on a local and landscape scale include:

* Where do we already have milkweed and are monarchs currently using it? This could be a standardized baseline inventory protocol for habitat and species presence. However, a rapid assessment protocol would be useful for sites that are short on staff or funding, and would also increase the likelihood that we get a more complete “picture” of the current contributions and potential across Region 5. We are also compiling spatial layers that already exist which can help focus our initial efforts.
* Does the milkweed we have at a particular site constitute monarch habitat? We know that milkweed and nectar producing plants together provide optimal habitat, but there isn’t much information on how much milkweed or nectar plants we need, and over how many acres. If we are already hoping to inventory milkweed and monarchs at multiple sites, maybe this is an opportunity to help define what constitutes good habitat.
* What factors may explain a lack of increased monarch use, following an increase in milkweed and nectar producing plants? What other variables should we be considering?
* How will we know if our efforts are contributing to an increase in the wintering monarch population?
* In the next year, while protocols are being developed, we will enlist and encourage all Service sites with milkweed and monarchs to try the Monarch Breeding Habitat Assessment Tool created by the MJV as a starting point for identifying important areas. We will also continue reviewing the existing protocols and networks that may be applicable here in Region 5.
* In the next year, we are also committed to identifying ways to incorporate citizen science into these efforts. We are still familiarizing ourselves with the existing citizen science efforts and will evaluate which ones may be most applicable in Region 5. Additionally, we will explore the possibility of incorporating monarch sightings into eBird.

1. **Research**

**Provide a bullet list of FY15 research projects using existing funds. Include project title, brief description, partners, metrics and outcomes.**

* We currently have 1 research project identified in our project spreadsheet. Dr. Larry Brindza has been tagging monarchs at the Eastern Shore of Virginia, Fisherman’s Island, Occoquan Bay and Mason Neck National Wildlife Refuges in Virginia since 2001as part of an ongoing study comparing the success of monarch butterfly migration to overwintering sites in Mexico and inland and coastal sites in Virginia. The study showed significantly fewer monarchs in Mexico that originated along the coast than inland Virginia sites. It also showed significantly more females than males. This study has not been conducted using Service funds but will continue next year. (*Brindza, L.J., L.P. Brower, A.K. Davis, and T. Van Hook. 2008. Comparative success of monarch butterfly migration to overwintering sites in Mexico from inland and coastal sites in Virginia. J. Lepidopterists’ Society 62(4):189-200).*
* During the next year, we will implement an SHC approach and consult with subject matter experts, other Regions, and Headquarters, to identify priority research needs for Region 5.

1. **Education and Outreach/In-reach**

**Provide a bullet list of current and planned activities and commitments for education, outreach and in-reach in FY15 using existing funds. Identify partners and metrics and outcomes.**

**Include plans to incorporate monarch conservation education and outreach in Urban Initiatives within your region.**

**Summarize numbers of existing and planned Schoolyard Habitats and Pollinator Gardens in the table below.**

* In FY15, External Affairs will lead a cross-program outreach campaign about the plight of monarchs and highlight Service projects to help monarchs. In the fall (early FY15), we already led a small outreach campaign that highlighted the work of field stations that have set up monarch way stations, held public milkweed and seaside goldenrod plantings, and other outreach and environmental education programs. The campaign also featured a how-to guide from a local homeowner in Massachusetts that used an award-winning grant from Parker River National Wildlife Refuge to transform her yard and a nearby local park into a monarch way-station. This campaign was featured on the Northeast Region blog and there was a local story that discussed the homeowner’s conservation work and President Obama’s health task force to establish a strategy for preserving pollinators. (Blog campaign: <http://usfwsnortheast.wordpress.com/tag/monarch-butterflies/>. Local news story: <http://ipswich.wickedlocal.com/article/20140729/ENTERTAINMENTLIFE/140726698>)
* In spring 2015, External Affairs will kick-off another effort to include:
  + blog posts from homeowners around the Northeast that maintain monarch way stations and pollinator gardens
  + local and regional media pitches to arrange field visits at different sites throughout the northeast.
  + a social media campaign
  + outreach support for field stations that continue to incorporate monarchs into environmental education, interpretation and outreach programs
* We are aware of ongoing coordination between our Office of External Affairs and our External Affairs at Headquarters about the development of a national communications strategy.  Per guidance, we are awaiting a national strategy that ties together national steps being taken across the agency in these regional action plans.  Regional communications experts will then step down communications to regional and local audiences.  We anticipate receiving such a strategy by early January 2015.
* Within our Region, 30 of our existing projects have a strong outreach component, and 24 projects are engaging youth (see attached spreadsheet). We hope to expand that number in the next year by building on existing programs.
* Within our Region we will develop a strategy and begin engaging urban partners and schools to develop pollinator gardens and school yard habitats, and increase youth engagement. We will also promote the development of way-stations, which can be as small as 10x10 feet.
* Explore the possibility of an outreach campaign geared towards garden plant growers that provide plants to major chains such as Home Depot, Lowes, and Walmart to spread the message about neonicotinoid pesticides which are lethal to the insects that feed on the plants. Businesses could advertise that they offer pollinator friendly plants that are not grown from seed treated with neonicotinoid pesticides.
* Explore the possibility of engaging gardeners. For example, there is a master gardener in New Hampshire whose focus of work is on pollinators, especially the monarch butterfly. The outreach potential from this one person alone stretches across the state to dozens of natural resource stewards who have private lands and are enthusiastically looking for ways to help with the monarch butterfly effort.
* Explore the possibility of training for Service staff and partners to help disseminate information, especially BMPs, when available.

**School yard Habitats and Pollinator Gardens**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **# Existing** | **# Enhanced or Planned for FY15 Using Existing Funds** | **Partners** |
| **Schoolyard Habitats and Outdoor Classrooms** | 12 | 30 | New Haven, CT; Newbury (MA) Elementary School; Hopewell Crest Middle School; American Littoral Society; Massaro Farms, Woodbridge, CT; Fairfax County Schools (VA); Newburyport Business Park; Gulf of Maine Institute; Providence, RI; Newbury and Newburyport Schools (MA); Cape May Regional High School; Reeds Road Elementary School; Egg Harbor Community School; Allamuchy Township Elementary School (NJ) |
| **Pollinator Gardens/ Trails/ landscaping on Service Facilities (NWRs, NFHs, other field offices)** | 24 | 5 | Canaan Valley NWR Friends; Mashpee Conservation Commission (MA); Mashpee Environmental Coalition; Branford and Guilford, CT Garden Clubs; 4-H; James River Ecology School; Cape Cod Americorps; Mashpee Wampanoag Indian Tribe; Rhody Native Master Gardeners; Friends of Erie NWR; Clearwater Conservancy; Rhode Island Natural History Survey |

1. **Other Plans Not Addressed in the Above Sections**

None.

**Part II. Monarch Projects and Opportunities for FY 15 and Beyond (in Priority Order) that Could Be Realized with Additional Funding**

**This part of the template provides the opportunity to describe potential projects and funding needs at two scales.**

1. **Large Partnership Initiatives**

**The Director asked us to think big. Here is your opportunity to describe potential large partnership initiatives focused on priority breeding and migration habitats that address habitat restoration/enhancement, inventory and monitoring, education and outreach, and research components. Include an estimate of needed Service funding and a description of potential cash and in-kind contributions from potential partners.**

In Part 1 of the template, we identified several partner projects where we expect significant opportunities for monarch habitat enhancement and restoration. We have a lot of work to do to further refine partner opportunities and engage the most appropriate partners. It is likely that funding could help with the large scale, Region-wide efforts, but it is nearly impossible to determine how much funding is needed to support them at this early stage. In addition, we have identified the following large initiatives:

* SHC Approach – no funding needs identified at this time: We recognize the importance of “jump starting” our monarch butterfly conservation efforts immediately, and we look forward to continuing conversations with our Science Applications and LCC staff, as well as engaging subject matter experts to ensure we develop a long-term approach to monarch conservation that is grounded with an SHC approach. The funding amount has not been determined.
* Policy Change to CREP – no funding needs identified at this time: We will work for a policy change in NRCS programs to benefit pollinators. Specifically, the biggest losses to pollinator habitat for Monarchs in PA over the last few years has been due to the Farm Service Agency (FSA) and the NRCS requiring that CREP fields must be at least 60% grass to be eligible to re-enroll.  We have lost thousands of acres due to ineligibility, and those acres are now back into row crop production.  Wildlife (pollinators) is not considered a resource concern.  The irony is that the best pollinator fields are not eligible to re-enroll in CREP.  A quick fix solution would be to eliminate the grass cover requirement for CREP re-enrollment eligibility to help pollinators.  The administrators are locked into the concept that the landowner should be retaining the cover that was paid for to be established, and if something better has resulted for wildlife, it isn’t encouraged. Even though forbs are just as good at reducing erosion as grass, and a much better scenario than these habitats going back into crop reduction, the forbs are removed in an effort to get the grass back on the landscape so the fields remain eligible.
* Pesticide Company Mitigation – no funding needs identified at this time: We are also interested in working with other Regions to pursue a mechanism through which pesticide companies (e.g. Monsanto) can mitigate for the harm done through the use of their products. As Monsanto’s “Roundup Ready” corn and soybeans spread across the Midwest, the amount of milkweed in farm fields fell by more than 80 percent. Patches of milkweed used to grow among the corn and along edges of field. Now, crop plants are designed to withstand Roundup. These crops are treated and survive, while beneficial weeds, including milkweed, are eliminated. Monsanto and others could showcase their mitigation efforts and increase positive public perception if a system were in place.
* Monarch Habitat Creation through States - $100,000 – Habitat Restoration and Enhancement:
  + We will follow the successful model of the WNS grants to states to jump start habitat restoration for monarch butterflies.  We hope to create a funding source that states can apply for, with no match requirement, with eligibility criteria that focuses work on milkweed planting and forage habitat creation for adult monarchs. States have very limited funding to spend on habitat work specifically for invertebrates, since Federal Aid in Wildlife Restoration (aka Pittman-Robertson) grants are only eligible for wild birds and mammals.  Undoubtedly grasslands and shrublands created/maintained with grant funds for game species benefit monarchs, but planting milkweed is a direct conservation action for monarchs that cannot utilize Wildlife Restoration funding. States can spend State Wildlife Grant funds on invertebrates identified as Species of Greatest Conservation Need (SGCN), but given the very recent nature of the crisis, monarchs have not been identified as SGCN in many states so that funding source is very limited.  Northeast states have indicated there is opportunity to create habitat for monarchs on private lands.  Additional funding, with no match requirement, could create milkweed patches to help sustain the eastern population on both state owned wildlife management areas and private lands.
  + As another example, the Maryland DNR oversees the management of 48 Wildlife Management Areas (WMAs), ranging in size from under 15 acres to over 30,000 acres. The WMA system encompasses about 130,000 acres with an rough estimate of 40,000 acres managed in grasslands. There is potential to enhance an estimated 5,000 acres through delayed mowing and other existing management techniques and potentially restore 500 acres for monarch with additional funding.

1. **Smaller Discrete Projects**
2. **Habitat Restoration & Enhancement Opportunities**

**Briefly describe priority monarch habitat projects (bullet list in priority order) that would require additional funding for implementation (project name, project type, partners). Summarize acres and estimated costs in the table below.**

While compiling information about ongoing and planned projects that benefit monarch butterflies, we identified several habitat and restoration projects totaling 280 acres on and off Refuge lands that could easily be implemented with additional funding (see attached spreadsheet for details). Those acres are summarized in the table below, but are an underestimate as some potential projects haven’t identified the total project acres yet. We’ve also identified an opportunity for improving habitat on 34,000 acres of private lands through our State partners. In addition, we’ve identified several approaches that could easily be expanded to include more partners and acres with additional funding. We’ll be able to refine these strategies and project prioritization when we have more information regarding where on the landscape we should be focusing our work. Some examples are below:

* Monarch Habitat Enhancement through Partners for Fish and Wildlife Program - $100,000 – Habitat Restoration and Enhancement: The Partners for Fish and Wildlife Program are already involved in many habitat enhancement and restoration projects that benefit pollinator species. With additional funding, they could significantly increase the number of acres benefitting monarch butterflies. We estimate an average cost of $300/acre which would generally include site preparation (including tilling and removal of non-native species) and planting. With these funds, we would establish a ranking system for potential projects, and projects that incorporate milkweed and nectar producing plants in high priority areas would rank higher for funding. Potential partners are NGOs, schools, private, state, and other federal landowners.
* Monarch Habitat Enhancement on Service Facilities and Lands - $100,000 – Habitat Restoration and Enhancement: We have numerous opportunities throughout the Region for enhancing and restoring habitats and creating pollinator gardens on Service facilities and lands, but we need to identify the most important geographic areas for this work first. For example, we have some observations that suggest our coastal islands even as far north as Maine, are important migration sites. With these funds, we would establish a ranking system for potential projects, and projects that incorporate milkweed and nectar producing plants in high priority areas would rank higher for funding.
* State Management Actions to Benefit Monarchs - $100,000 – Habitat Enhancement and BMPs: The NE states have suggested that funding would be incredibly helpful in providing incentives to private landowners for delayed mowing/haying and planting of milkweed patches.  Several states have very active private lands management programs Just as an example, Virginia has 34,000 acres where their private lands biologists work with landowners to create/maintain wildlife habitat.

**Habitat Restoration & Enhancement Opportunities**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Ownership** | **Additional Acres Requiring Additional (new) funds[[9]](#footnote-9)** | **Partners[[10]](#footnote-10)** |
| **Restoration** | Service owned lands |  |  |
| Easements |  |  |
| State lands |  |  |
| Private Lands |  |  |
| ROWs, roadsides |  |  |
| Mitigation Bank |  |  |
| Tribal lands |  |  |
| Corporate | 42 |  |
| NGOs |  |  |
| Schools |  |  |
| Towns / Municipalities |  |  |
| Other |  |  |
| **Subtotal Acres Restoration** | | 42 |  |
| **Enhancement** | Service owned lands | 236 |  |
| Easements |  |  |
| State lands |  |  |
| Private lands | Over 35,000 | VT, NY, VA |
| ROWs, roadsides |  |  |
| Mitigation Bank |  |  |
| Tribal |  |  |
| Corporate |  |  |
| NGOs |  |  |
| Schools |  |  |
| Towns / Municipalities | 2 |  |
| Other |  |  |
| **Subtotal Acres Enhancement** | | 35,238 |  |
| **Land acquisition** |  |  |  |
| **Total Acres FY 15** | | 35,280 |  |

1. **Best Management Practices**

**Describe plans to develop monarch-specific BMPs for your Region that would require additional funding.**

* In Part 1 of the template, we identified the need to develop several BMPs, which will help us engage additional partners. It is likely that funding could help with the large scale, Region-wide effort, but it is difficult to determine how much funding is needed to support development at this early stage.

1. **Native Seed Strategies**

**Briefly describe priority projects to increase the availability of native milkweed and nectar plant seeds (bullet list in priority order) that would require additional funding for implementation. Include project name, project type, partners, and estimated costs.**

* Region-wide Milkweed Seed Distribution - $25,000 – Habitat Restoration and Enhancement: Ecological Services has purchased $5,000 worth of milkweed seed for distribution in Region 5. This will help restore and enhance more than 200 acres of habitat. It is likely that once we begin looking more closely at where we have milkweed, and where we want more milkweed, there will be a high demand throughout the Region for milkweed seed. Some sites can continue collecting from the field, but having seed available to distribute throughout the Region (both to Service and non-Service lands, such as schools) would help us increase our acres of habitat. With $25,000 dedicated to purchasing seed, we could restore and enhance an additional 1,000 acres of monarch habitat. Partners include schools, NGOs, private landowners, and others.

1. **Inventory and Monitoring**

**Briefly describe priority inventory and monitoring projects (bullet list in priority order) that would require additional funding for implementation. Include project name, project type, partners, and estimated costs.**

* In Part 1 of the template, we identified the need to develop several protocols, but it is likely we’ll identify additional inventory and monitoring protocols, such as disease monitoring. Funding could also help with implementation of protocols and allow us to hire staff to work across the Region conducting baseline surveys, but it is difficult to determine how much funding is needed to support this effort at this early stage.

1. **Research**

**Identify priority research needs (bullet list in priority order) that would require funding for implementation. Include project name, outcomes, and estimated costs.**

* We plan on identifying priority research needs in the next year, including a better understanding of migration throughout our Region (Do monarchs follow geologic features such as major river systems? Is the coast particularly important?). It is difficult to determine how much funding is needed to support this effort at this early stage.

1. **Education and Outreach/In-reach**

**Briefly describe priority education and outreach projects and activities (bullet list in priority order) that would require additional funding for implementation. Include project name, project type, partners, and estimated costs.**

* Urban Monarch Partnership with National Football League - $20,000 - Outreach and Habitat Restoration and Enhancement: Region 5 will develop a partnership with the National Football League and youth organizations, particularly the Philadelphia Eagles or the Baltimore Ravens, in urban and schoolyard habitat development for monarchs (and other pollinators and birds) in Philadelphia or Baltimore, the region’s top priority urban areas. The partnership would engage youth in the outdoors and complement the NFL’s Play 60 campaign, a program designed to get kids active. Funds will be used to sponsor appropriate events and potential PSAs. Partners include the NFL, Student Conservation Association, and other youth organizations
* Monarchs in the City: An Urban Monarch Partnership in NYC - $20,000 - Outreach and Habitat Restoration and Enhancement: Region 5 will work with The Student Conservation Association’s Conserve NYC crews to plant milkweed in New York City in the late summer and early fall of 2015. Additional work could include habitat restoration and/or maintenance for pollinators. An outreach component will include student blogs and strategic media pitches to NYC-area media. Funds will be used to provide a stipend to the youth crews that will be participating in planting and habitat restoration activities, thereby helping to meet Service goals under the Secretary’s youth initiative. Partners include SCA, National Park Service, NYC Parks, Central Park Conservancy, National Wildlife Federation, and Audubon
* Monarch Storymap and Community Geography Project - $20,000-$40,000 (with additional leveraged investments by partners, and building upon existing work done through Hurricane Sandy storymap (very prelimnary estimates, detailed cost estimates needed) – Outreach: Region 5 proposes to work with Headquarters and other regions, in partnership with National Geographic and ESRI, to develop a national storymap for monarchs conservation as part of a community geography initiative. Storymaps are an emerging platform for telling a story through maps, multimedia, and narrative. Both ESRI and National Geographic are leading efforts to use these platforms, and have partnered together on . Region 5 has had some recent working with both of these organiziations - with ESRI on the Hurricane Sandy storymap (,<http://www.fws.gov/hurricane/sandy/storymap/>), and with National Geographic on the “National wildlife Refuges of the James River” GeoStory (<https://www.geostories.org/portal/player/partner/envision-the-james/gesDC4A03BC0773FE485>). By working with these two key partners, we propose to take the public on a tour of the places where FWS and partners are conserving monarchs. This type of platform could also be developed into a citizen science platform, allowing citizens to report in where they are seeing monarchs and what they are doing to conserve them. Partners include National Geographic, ESRI, NWF, all FWS regions and Headquarters.

1. **Other Plans Not Addressed in the Above Sections**

None.

1. Please see attached spreadsheet of all projects for the numerous, diverse partners. [↑](#footnote-ref-1)
2. We have not included Service-owned lands that are coming out of agricultural use because we have not had time to evaluate the appropriateness of them being converted to habitat that will support monarch butterflies. [↑](#footnote-ref-2)
3. This category was added by Region 5. [↑](#footnote-ref-3)
4. This category was added by Region 5. [↑](#footnote-ref-4)
5. This category was added by Region 5 [↑](#footnote-ref-5)
6. This is likely an underestimate; we believe management of more Service-owned lands has already adapted to, or will adapt in 2015, to better support monarch butterfly habitat. [↑](#footnote-ref-6)
7. After polling the Northeast Habitat Technical Committee, 3 states (VT, NY, CT) have responded that they are willing to discuss immediate changes in state land management practices, including pushing mowing back until late summer or mowing on a biennial cycle to directly benefit monarchs.  [↑](#footnote-ref-7)
8. We were not able to confirm land acquisition acres for 2015. [↑](#footnote-ref-8)
9. Acres are an underestimate because acres of habitat impacted by large partnerships, such as policy changes, are not included here. Additionally, we expect hundreds of more acres to be enhanced and restored if we receive additional funding. [↑](#footnote-ref-9)
10. Please see attached spreadsheet of all projects for a list of partners. [↑](#footnote-ref-10)